



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,487	03/31/2004	Katrina Mikhaylichenko	LAM2P451	1220

25920 7590 07/20/2006

MARTINE PENILLA & GENCARELLA, LLP
710 LAKEWAY DRIVE
SUITE 200
SUNNYVALE, CA 94085

EXAMINER

MACARTHUR, SYLVIA

ART UNIT PAPER NUMBER

1763

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No.	Applicant(s)	
	10/816,487	MIKHAYLICHENKO ET AL.	
	Examiner	Art Unit	
	Sylvia R. MacArthur	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/25/2006, 3/31/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. Claims 10, 15-17, 20 and 21 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 11/061,944 held to Yun et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the present invention is narrower than the application by Yun et al.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Yun et al teaches a proximity head connected to a fluid source wherein the head further includes a heating element, see claims 15 and 17 of the co-pending application.

Regarding claim 10: Yun et al fails to teach a sensor.

Mertens et al teaches a proximity head with a heat source 4. According to page 11 lines 13-19 the heater is equipped with a thermocouple-thermometer (temperature sensor).

The motivation to provide the proximity head of Yun et al with a thermocouple as taught by Mertens et al is that the temperature of the processing fluid is an important processing parameter that when monitored can improve the processing result. Thus, it would have been obvious to modify the proximity head of Yun et al to include a heater with a temperature sensor.

Regarding claim 15: Yun et al fails to provide the specific structure of the heater used in the proximity head.

Art Unit: 1763

Mertens et al illustrates the proximity head's structure in Fig.1. Note the first/second flow paths and first/second channels as claimed by the present invention. The separation of the flow paths allows only the necessary fluid that being supplied to the wafer to be heated while maintaining the temperature of the fluid in the second flow path. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide separated flow paths for the proximity head of Yun et al. Regarding claim 16: The thermocouple/thermometer of Mertens comprises a controller as a part of its structure and function of detecting the temperature.

Regarding claim 17: The apparatus of Yun et al comprises a fluid source, a proximity head with a heater, a first member manipulating the proximity head and a second member that manipulates the wafer support, see[0010], [0015], and [0033].

2. Claims 11-14, 18, and 19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 11/061,944 held to Yun et al in view of Mertens et al as applied to claims 10, 15-17, 20, and 21 above, in further view of Kawamura et al (US 5,696,348).

The teachings of Yun et al in view of Mertens et al were discussed above.

Yun et al in view of Mertens fails to teach the material of construction of the heater with a thermocouple/thermometer.

Kawamura et al teaches a thermocouple constructed of a protective pipe made of SiC see col. 2 lines 65. The motivation to use SiC as the material of construction is that is a known heat resistant ceramic material. Kawamura et al further teaches the thermocouple comprises wires, see the abstract. These wires are for coupling to a power supply see col.3 lines 38-40. In order to be used to conduct electricity

Art Unit: 1763

the wires are obviously made of an electrically conductive material. Thus, it would have been obvious to construct the heater/temperature sensor of the materials taught by Kawamura et al with wires and a protective coating to provide electricity to the heater/sensor while protecting it from the harsh physical/chemical environment of the semiconductor manufacturing system.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 10, 15-17, 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Mertens et al (WO 99/16109).

Mertens et al teaches a method and apparatus for removing a liquid from a surface.

Regarding claim 10: Mertens et al teaches a proximity head with a heat source 4. According to page 11 lines 13-19 the heater is equipped with a thermocouple-thermometer (temperature sensor).

Mertens et al illustrates the proximity head's structure in Fig.1. Note the first/second flow paths and first/second channels as claimed by the present invention.

Regarding claims 16 and 21: The thermocouple/thermometer of Mertens et al inherently comprises a controller as a part of its structure and function of detecting the temperature.

Regarding claim 17: The apparatus of Mertens et al comprises a fluid source, a proximity head with a heater, a first member manipulating the proximity head and a second member that manipulates the wafer support, see Figs.

Art Unit: 1763

Regarding claim 20: Page 13 lines 7-27 teaches an arm used to manipulate the proximity head, the substrate holder is also moved to change the size of the meniscus according to pages 12 and 13.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the hours of 8:30 a.m. and 5 p.m..

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-14, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens et al in view of Kawamura et al.

The teachings of Mertens et al were discussed above.

Mertens fails to teach the material of construction of the heater with a thermocouple/thermometer.

Kawamura et al teaches a thermocouple constructed of a protective pipe made of SiC see col. 2 lines 65. The motivation to use SiC as the material of construction is that is a known heat resistant ceramic material. Kawamura et al further teaches the thermocouple comprises wires, see the abstract. These wires are for coupling to a power supply see col.3 lines 38-40. In order to be used to conduct electricity the wires are obviously made of an electrically conductive material. Thus, it


Art Unit: 1763

would have been obvious to construct the heater/temperature sensor of the materials taught by Kawamura et al with wires and a protective coating to provide electricity to the heater/sensor while protecting it from the harsh physical and chemical environment of the semiconductor manufacturing system.

Conclusion

6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Sylvia R MacArthur
Patent Examiner
Art Unit 1763

July 10, 2006